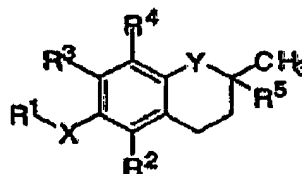


AMENDMENT

1. (Currently amended): A method for inhibiting the growth of tumor cells in an individual comprising administering to the individual a pharmacologically effective dose of a compound having a structural formula



Wherein X is oxygen;

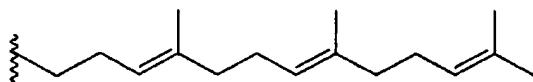
Y is oxygen, NH or NCH₃ or NR⁶;

R¹ is -(CH₂)₁₋₅CO₂H, -(CH₂)₇CO₂H, -CH₂CONH₂, -CH₂CO₂CH₃, -CH₂CON(CH₂CO₂H)₂, -(CH₂)₂OH, -(CH₂)₃NH₃Cl, or -(CH₂)₂OSO₂NH₂, -C₁₋₁₀alkylene-COOH, -C₁₋₄alkylene-CONH₂, -C₁₋₄alkylene-COO-C₁₋₄alkyl, -C₁₋₄alkylene-CON(C₁₋₄alkylene-COOH)₂, -C₁₋₄alkylene-OH, -C₁₋₄alkylene-NH₂-halo or -C₁₋₄alkylene-OSO₂NH(C₁₋₄alkyl), -C₁₋₄alkylene-COO-C₁₋₄alkyl, -C₁₋₁₀alkylene-CO-SH, -C₁₋₄alkylene-CO-S(C₁₋₄alkyl), -C₁₋₄alkylene-CS-NH₂, -C₁₋₄alkylene-CO-NH(C₂₋₆)(C₁₋₄alkyl)_n, wherein n is 2 or 1, -C₁₋₄alkylene-SO₂-O(C₁₋₄alkyl), -C₁₋₄alkylene-OSO₂-O(C₁₋₄alkyl), -C₁₋₄alkylene-OP(O-C₁₋₄alkyl)₂, or -C₁₋₁₀alkylene-CN;

R² and R³ are independently hydrogen or R⁴;

R⁴ is methyl; and

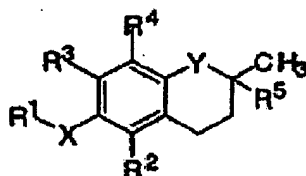
R⁵ is



a C₇₋₁₆ olefinic group containing 3 to 5 ethylenic bonds;

~~_____R⁶ is hydrogen or methyl.~~

2. (Previously presented): The method of claim 1, wherein said compound is α -tocotrienol, γ -tocotrienol or δ -tocotrienol.
3. (Original): The method of claim 1, wherein said compound is 2,5,7,8-tetramethyl-2R-(4,8,12-trimethyl-3,7,11 E:Z tridecatrien) chroman-6-yloxy) acetic acid.
4. (Previously presented): The method of claim 1, wherein said compound induces apoptosis, DNA synthesis arrest, cell cycle arrest, or cellular differentiation in cells comprising said tumor.
5. (Previously presented): The method of claim 1, wherein said compound is administered in a dose of about 1 mg/kg to about 60 mg/kg.
6. (Previously presented): The method of claim 5, wherein administration of said composition is oral, topical, liposomal/aerosol, intraocular, intranasal, parenteral, intravenous, intramuscular, or subcutaneous.
7. (Canceled).
8. (Previously presented): The method of claim 1, wherein said tumor cells comprise an ovarian cancer, a cervical cancer, an endometrial cancer, a bladder cancer, a lung cancer, a breast cancer, a testicular cancer, a prostate cancer, a glioma, a fibrosarcoma, a retinoblastoma, a melanoma, a soft tissue sarcoma, an osteosarcoma, a leukemia, a colon cancer, a carcinoma of the kidney, a pancreatic cancer, a basal cell carcinoma, or a squamous cell carcinoma.
- 9-13. (Canceled).
14. (Currently amended): A method of inducing apoptosis of a cell, comprising the step of contacting said cell with a pharmacologically effective dose of a compound having a structural formula



Wherein X is oxygen;

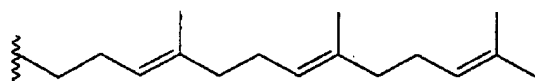
Y is oxygen, NH or NCH₃ or NR⁶;

R¹ is ~~-(CH₂)₁₋₅CO₂H, -(CH₂)₇CO₂H, -CH₂CONH₂, -CH₂CO₂CH₃, -CH₂CON(CH₂CO₂H)₂, -(CH₂)₂OH, -(CH₂)₃NH₃Cl or -(CH₂)₂OSO₂NHET₃-C₁₋₁₀alkylene-COOH, C₁₋₄alkylene-CONH₂, C₁₋₄alkylene-COO-C₁₋₄alkyl, C₁₋₄alkylene-CON(C₁₋₄alkylene-COOH)₂, C₁₋₄alkylene-OH, C₁₋₄alkylene-NH₂-halo or C₁₋₄alkylene-OSO₂NH(C₁₋₄alkyl), C₁₋₄alkylene-COO-C₁₋₄alkyl, C₁₋₁₀alkylene-CO-SH, C₁₋₄alkylene-CO-S(C₁₋₄alkyl), C₁₋₄alkylene-CS-NH₂, C₁₋₄alkylene-CO-NH_(2-n)(C₁₋₄alkyl)_n wherein n is 2 or 1, C₁₋₄alkylene-SO₂-O(C₁₋₄alkyl), C₁₋₄alkylene-OSO₂-O(C₁₋₄alkyl), C₁₋₄alkylene-OP(O-C₁₋₄alkyl)₃, or C₁₋₁₀alkylene-CN;~~

R² and R³ are independently hydrogen or R⁴;

R⁴ is methyl; and

R⁵ is



~~a C₇₋₁₆ olefinic group containing 3 to 5 ethylenic bonds;~~

~~—R⁶ is hydrogen or methyl.~~

15. (Previously presented): The method of claim 14, wherein said compound is α -tocotrienol, γ -tocotrienol or δ -tocotrienol.

16. (Original): The method of claim 14, wherein said compound is 2,5,7,8-tetramethyl-2R-(4,8,12-trimethyl-3,7,11 E:Z tridecatrien) chroman-6-yloxy) acetic acid.
17. (Canceled).
18. (Currently amended): The method of claim 1, wherein R^1 is $-(CH_2)_{1-5}CO_2$ or $-(CH_2)_7CO_2H$ ~~$-C_{1-10}alkylene-COOH$.~~
19. (Currently amended): The method of claim 1, wherein R^1 is $-CH_2CONH_2-C_{1-4}alkylene-CONH_2$.
20. (Currently amended): The method of claim 1, wherein R^1 is $-CH_2CO_2CH_3-C_{1-4}alkylene-COO-C_{1-4}alkyl$.
21. (Currently amended): The method of claim 1, wherein R^1 is $-CH_2CON(CH_2CO_2H)_2-C_{1-4}alkylene-CON(C_{1-4}alkylene-COOH)_2$.
22. (Currently amended): The method of claim 1, wherein R^1 is $-(CH_2)_2OH-C_{1-4}alkylene-OH$.
23. (Currently amended): The method of claim 1, wherein R^1 is $-(CH_2)_3NH_3Cl-C_{1-4}alkylene-NH_3-halo$.
24. (Currently amended): The method of claim 1, wherein R^1 is $-(CH_2)_2OSO_2NHET_3-C_{1-4}alkylene-OSO_2NH(C_{1-4}alkyl)$.
- 25-33. (Canceled)
34. (Previously presented): The method of claim 1, wherein R^2 is hydrogen.
35. (Previously presented): The method of claim 1, wherein R^2 is methyl.
36. (Previously presented): The method of claim 1, wherein R^3 is hydrogen.
37. (Previously presented): The method of claim 1, wherein R^3 is methyl.
38. (Previously presented): The method of claim 1, wherein R^4 is methyl.

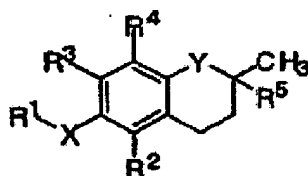
39. (Canceled)
40. (Currently amended): The method of claim 1, wherein Y is NCH₃R⁶ ~~is methyl.~~
41. (Currently amended): The method of claim 1, wherein Y is NHR⁶ ~~is hydrogen.~~
42. (Currently amended): The method of claim 14, wherein R¹ is -(CH₂)₁₋₅CO₂ or -(CH₂)₇CO₂H
~~-C₁₋₁₀alkylene-COOH.~~
43. (Currently amended): The method of claim 14, wherein R¹ is -CH₂CONH₂-C₁₋₄alkylene-
~~CONH₂.~~
44. (Currently amended): The method of claim 14, wherein R¹ is -CH₂CO₂CH₃-C₁₋₄alkylene-
~~COO-C₁₋₄alkyl.~~
45. (Currently amended): The method of claim 14, wherein R¹ is -CH₂CON(CH₂CO₂H)₂-C₁₋
~~4alkylene-CON(C₁₋₄alkylene-COOH)₂.~~
46. (Currently amended): The method of claim 14, wherein R¹ is -(CH₂)₂OH-C₁₋₄alkylene-OH.
47. (Currently amended): The method of claim 14, wherein R¹ is -(CH₂)₃NH₃Cl-C₁₋₄alkylene-
~~NH₂-halo.~~
48. (Currently amended): The method of claim 14, wherein R¹ is -(CH₂)₂OSO₃NHEt₃-C₁₋
~~4alkylene-OSO₂NH(C₁₋₄alkyl).~~
- 49-57. (Canceled)
58. (Previously presented): The method of claim 14, wherein R² is hydrogen.
59. (Previously presented): The method of claim 14, wherein R² is methyl.
60. (Previously presented): The method of claim 14, wherein R³ is hydrogen.
61. (Previously presented): The method of claim 14, wherein R³ is methyl.
62. (Previously presented): The method of claim 14, wherein R⁴ is methyl.

63. (Canceled)

64. (Currently amended): The method of claim 14, wherein Y is NCH₃~~R⁶ is methyl~~.

65. (Currently amended): The method of claim 14, wherein Y is NHR⁶~~is hydrogen~~.

66. (New): The method of claim 1, wherein the compound has the structural formula



wherein X is oxygen;

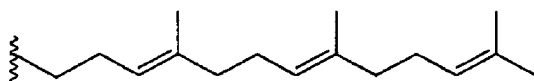
Y is oxygen, NH or NCH₃;

R¹ is -(CH₂)₁₋₃CO₂H, -CH₂CON(CH₂CO₂H)₂, -(CH₂)₃NH₃Cl, or -(CH₂)₂OSO₃NHEt₃;

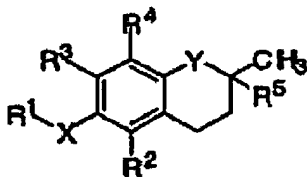
R² and R³ are independently hydrogen or R⁴;

R⁴ is methyl; and

R⁵ is



67. (New): The method of claim 14, wherein the compound has the structural formula



wherein X is oxygen;

Y is oxygen, NH or NCH₃;

R¹ is -(CH₂)₁₋₃CO₂H, -CH₂CON(CH₂CO₂H)₂, -(CH₂)₃NH₃Cl, or -(CH₂)₂OSO₃NHEt₃;

R² and R³ are independently hydrogen or R⁴;

R⁴ is methyl; and

R⁵ is

